Dagmar Hainbucher
Institut für Meereskunde
der Universität Hamburg
Troplowitzstr. 7
D-22529 Hamburg

Tel.: +49 40 4123 5745
Fax: +49 40 4123 4644
e-mail: hainbucher@ ifm.uni-hamburg.de

Cruise Report
POSEIDON cruise POS 264

Tórshavn - Tórshavn - Tórshavn
25. August - 10. September 2000
Technical Report 01-00

On citing this report in a bibliography, the reference should be followed by the words *unpublished manuscript*.

1. Aims of the cruise

RV POSEIDON cruise POS 264 was carried out by the Institut für Meereskunde of the University of Hamburg and staff from the Niels Bohr Instituttet for Astronomi, Fysik og Geofysik of the University of Copenhagen also participated.

The cruise had several objectives:

- to educate undergraduate students in the handling of oceanographic instrumentation and in the collection and analysis of field data,
- to map the cold overflow through the Faroe-Bank Channel from the Norwegian Sea into the Icelandic Basin and to study its short-time variability and
- to quantify the contributions of the water masses which are involved in the mixing of the overflow plume with its ambient water.

The planning and preparation of the cruise involved the participating students and was carried out during seminars, both at the Universities of Hamburg and Copenhagen. Following a review of the recent literature and an analysis of historical data the observational programme was designed. Hydrographic and current profiling stations were occupied along several sections crossing the overflow. Underway current profiles to a depth of about 300 m were collected with an ADCP and sea surface temperatures were measured with a thermo-salinograph, both installed in the ship's well.

The experiment was financed by the University of Hamburg.

2. Narrative

POSEIDON sailed from Tórshavn at 8:30 p.m. on August, 25, 2000, and set course for the first section at the southern entrance of the Faroe-Bank Channel. We arrived at the first station at approximately 3 a.m. on August, 26 where the CTD measurements were started. Station distance on this section was about 3 nm and the weather conditions allowed to proceed from station to station within half an hour. On the same day we occupied also section 2 at the central part of the Faroe-Bank Channel and on August, 27, during the afternoon, we finished our third section at the north western exit of the channel. These three sections gave us an insight in the amount of available overflow water and its mixing in the channel. At station 20, section 3, we were able to employ our lADCP for the first time, which was not running before, because of problems with the cable connection between the instrument and the computer.

To investigate, if cold overflow water is transported from the Wyville-Thomson Ridge through the trench between Bill Bailey's and Lousy Bank, we ran section 4 on August, 28 from 60° 42' N and 11° 10'W to 60° 42 N and 11° 50' W, but we did not find any water masses colder than 3° C there. The following section 5 from 60° 42' N and 12° 35' W to 61° 22' N and 13° 29' W, which was run with a resolution of about 2.5 nm from August, 28 to August, 29, was carried out to test the hypothesis of an ageostrophic branch of the Faroe-Bank Channel overflow. A preliminary analysis of the hydrographic data does not support this suggestion.

Section 6 was also run with a high resolution, extending from 61° 26' N and 13° 25' W to 62° 34'N and 12° W. The 24 stations of this section were run between the morning of August, 29

and the afternoon of August, 30. The preliminary analysis of this section showed strong traces of Labrador Sea Water, identified by a salinity minimum of 34.91 at a temperature around 3.8° C, just above the colder and more saline overflow plume.

After intensive discussions between the students and scientists onboard it was decided to proceed on this leg with a measurement programme for the study of the high-frequent variability of the overflow by repeating section 3 at the exit of the Faroe-Bank Channel as often as possible. We were able to run the section 4 times and the preliminary analysis showed that since we ran this section for the first time, about 2.5 days ago, the overflow had changed its plume height by about a 100m. Changes in the plume height from one to another repeat were also quite obvious, but not as strong as in comparison to the first run. Unfortunately, we lost our lADCP at station 91. It seemed that the self-securing screws of the fastening of the lADCP loosened and the lADCP slipped out of its rack.

On September, 1 at 6 p.m., the scientific work commenced and POSEIDON set course back to the port of Thorshavn where we arrived on September, 2 in the early morning. The students of the first leg left the ship shortly after our arrival for their homebound journey to Hamburg and Copenhagen.

The second leg of POSEIDON cruise POS 264 started at 8:00 p.m. on September, 3, only a few minutes after the second group of students from Hamburg and Copenhagen had arrived. After around 21 hours of steaming the first station of section 7 was occupied at the position 63° N and 13° 14' W. This was the most north-westerly section we ran in order to investigate the pathway and rate of mixing of the overflow water. The section was finished in the afternoon of September, 4 and we sailed about 15 nm to the east, for continuing the investigation with section 8 from 62° 10' N and 15° 20' E to 62° 40' N and 13° 32' W. This section was finished in the afternoon of September, 6. In the following, our intention was to run two further sections between section 8 and 6 and additionally, to repeat section 6. The high spatial resolution should enable us to resolve eddies within the overflow water which we expected to exist in this area based on observations on our previous cruises with RV VALDIVIA. However, the increasing heavy sea state conditions and the weather forecast forced us to stop the scientific work in this area and POSEIDON steamed back to the Faroe islands. There, we hoped, that the weather conditions would improve again, so that we can repeat section 3 and 2 for completing our investigations of the high-frequent fluctuations of the overflow plume. In the night of September, 6 we arrived at the Faroer archipelago but the weather was getting even worse and POSEIDON had to seek shelter north of the island Myggenes. Weather conditions remained bad during September, 7 and 8, and POSEIDON had to steam around the Faroe islands, always in shelter against the wind and the swell. Since the weather forecast did not promise a significant improvement of the sea state conditions in the working area for the next day we decided to go into the port of Tórshavn a day earlier than planned. On September, 9 in the late morning we arrived again in the port.

3. Cruise participants

Leg 1, 25. August. - 02. September 2000

Dagmar Hainbucher	Chief Scientist	IfM
Gitte Brandt Hedegaard	Student	NBIAFoG
Rune Grand Graversen	Student	NBIAFoG
Sólvá Káradottir Eliasen	Student	NBIAFoG
Mai-Britt Kronborg	Student	NBIAFoG
Jacob Lorentsen Høyer	Student	NBIAFoG
Mikael Lüthje	Student	NBIAFoG
Malte Müller	Student	IfM
Detlef Quadfasel	Scientist	NBIAFoG
Gerline Quast	Student	IfM

Leg 2, 03. September - 10. September 2000

Dagmar Hainbucher	Chief Scientist	IfM
Evelin Chabrowski	Student	IfM
Ingrid Funken	Student	IfM
Lucian S. Hroni	Student	IfM
Dagmar Krüger	Student	IfM
Jacob Lorentsen Høyer	Student	NBIAFoG
Heike Mattias	Student	IfM
Jens Olaf Pepke Pedersen	Scientist	NBIAFoG
Detlef Quadfasel	Scientist	NBIAFoG

IfM: Institut für Meereskunde
der Universität Hamburg
Troplowitzstr. 7
D-22529 Hamburg
Tel.: +49-40-4123 2605
Fax: +49-40-4123 4644
Telex: 212586 ifmhh d
e-mail: hainbuch@ifm.uni-hamburg.de

NBIAFoG: Københavns Universitet
Niels Bohr Instituttet for Astronomi,
Fysik og Geofysik
Juliane Maries Vej 30
DK-2100 København Ø
Tel: +45-35-320609
Fax: +45-35-365357
e-mail: dq@ gfy.ku.dk

4. Technical information

CTD/Rosette

Altogether 134 full depth standard hydrographic stations were occupied during the cruise, employing a SeaBird SBE911plus CTD-O2 sonde, attached to a SeaBird carousel 12 bottle water sampler. Profiles were run to within 10-15 m of the bottom. At all stations water samples were taken from two depth levels (10 m depth and 20 m above the bottom). The water samples were analysed onboard for salinity, using a Guildline Autosal salinometer. One of the water bottles were also equipped with protected and unprotected reversing thermometers, providing temperature and pressure check values for the CTD sensors. No samples were taken to calibrate the oxygen sensor.

Lowered Acoustic Doppler Current Profiler

Vertical profiles of horizontal currents were made with a 154 kHz RDI lowered ADCP attached to the rosette water sampler, using the technique developed at the Institut für Meereskunde Kiel. Despite the large uncertainties of this method in the near bottom layer we obtained good results for the current structure in the overflow regime.

Surface temperature and salinity

Underway temperature and salinity measurements were made with a thermo-salinograph installed in the ship's port well.

Current measurements

Underway current measurements were taken with a RDI 154 kHz acoustic Doppler Current Profiler (ADCP), covering approximately the top 300 m of the water column. The transducers were installed in the starboard ship's well.

5. Preliminary results

Short term variability both in thickness and distribution of the overflow plume was detected at the exit of the Faroe-Bank Channel during the cruise (figure 2). The thickness of the overflow layer, defined by water colder than 3° C, varies up to 200 m in this region and the slopes of the isoterms also vary strongly.

Further to the west (sections 7 and 8) the relevant water masses (figure 3) are Modified North Atlantic Water, Labrador Sea Water and Norwegian Deep Sea Water whereas in the Faroe-Bank Channel the Labrador Sea Water is not existent (figure 4). Figure 5 shows the distribution of the 3 water masses for the sections 7 and 8. The overflow water can be seen in a very thin layer along the bottom slopes.

The preliminary results are presented on the web page: www.ifm.uni-hamburg.de/

6. Acknowledgements

We like to thank captain Wolfgang Klaassen and his crew of RV POSEIDON for their support of the measurement programme and for the patience with the students most of whom had been on a research vessel for the first time in their career. A special thank to the electrician Thorsten Dammann who got our lADCP running and to the second mate Michael Schneider who made the nice photos of the two groups for the student's web page. Financial support for the cruise was provided by the University of Hamburg.

Figure 1: Location of hydrographic stations during POSEIDON cruise POS 264.

Figure 2: Potential temperature distribution of section 3.

Figure 3: T/S diagram of section 4 – 8.

Figure 4: T/S diagram of section 1 – 3

Figure 5: Distribution of water masses (in percentage) of section 7 and 8. MNAW: Modified North Atlantic Water, LSW: Labrador Sea Water, NSDW: Norwegian Sea Deep Water

Institut für Meereskunde
der Universität Hamburg
Troplowitzstr. 7
22529 Hamburg
F.R. Germany

Technical Reports

1-84 Baudner, H., K. Jancke and D. Quadfasel: CTD-data obtained in the Red Sea during 21-30 May 1983, RV SAGAR KANYA.

1-85 Meincke, J. and E. Mittelstaedt: Forschungsschiff METEOR, Reise Nr. 69 NORDOSTATLANTIK 84, NOAMP III. Berichte der wissenschaftlichen Leiter.

2-85 Verch, N. and D. Quadfasel: Hydrographic observations in the Norwegian Trench during 23 March - 17 April 1983, VALDIVIA cruise 10.

3-85 Backhaus, J., J. Bartsch, D. Quadfasel and J. Guddal: Atlas of monthly surface fields of air pressure, wind stress and wind stress curl over the North Eastern Atlantic Ocean for the period 1955-1982.

1-86 Hainbucher, D., J. Backhaus and T. Pohlmann: Atlas of climatological and actual seasonal circulation patterns in the North Sea and adjacent shelf regions: 1969-1981.

2-86 Quadfasel, D. and M. Ungewiß: Large-scale hydrographic structure of the upper layers in Fram Strait during the Marginal Ice Zone Experiment, 1984.

3-86 Quadfasel, D., E. Schelenz and N. Winkel: Marginal Ice Zone Experiment 1984. CTD-data obtained from RV VALDIVIA.

1-87 Quadfasel, D. and N. Verch: Seasonal variability of temperature in the Red Sea: XBT-sections from MCS "UBENA" in 1985 and 1986.

2-87 Quadfasel, D. and D. Grawunder: NORDMEER 86 - RV VALDIVIA cruise 48. CTD-observations in the Greenland Sea.

3-87 Verch, N., D. Quadfasel and S. Selchow: Hydrographic observations in the Tyrrhenian Sea during 26.2-25.3.1986. RV SONNE cruise 41 (HYMAS).

4-87 Boehlich, M. and J. Backhaus: Atlas simulierter Strömungen in der südwestlichen Ostsee für sommerliche Bedingungen.

1-88 Schauer, U.: VALDIVIA-Fahrt Nr. 61 (25.07.-23.08.1987)

2-88 Quadfasel, D.: VALDIVIA Reise 67 (1.2.-26.2.1988) Grönlandsee

3-88 Backhaus, J., J. Bartsch, P. Damm, D. Hainbucher, T. Pohlmann, D. Quadfasel and G. Wegner: Hydrographische Bedingungen und Zirkulation in der Nordsee im Winter und Frühjahr 1987/88 - Eine physikalische Hintergrundstudie zur extremen Planktonblüte im Frühjahr 1988.

4-88 Radach, G., J. Berg, B. Heinemann and T. Zachmann: Berichte über die Arbeiten des Teilprojektes P4 "Mathematische Modelle von Energie- und Stofftransporten durch die unteren tropischen Stufen des pelagischen Ökosystems der Nordsee.

5-88 Quadfasel, D., and M. Ungewiß: MIZEX 87 - RV VALDIVIA cruise 54. CTD observations in the Greenland Sea.

6-88 Backhaus, J.: On the circulation around the Faroe Islands and the adjacent continental slope: Experiments with a three-dimensional barotropic model.

1-89 Verch, N., M. Ungewiß, K. Schulze and D. Quadfasel: MINDIK - RV METEOR cruise 5. CTD observations in the Red Sea and Gulf of Aden.

2-89 Verch, N., M. Petzold, P. Mahnke and D. Quadfasel: Hydrographic bottle data obtained in the Red Sea and Gulf of Aden during RV METEOR cruise 5 - MINDIK 1987.

3-89 Schönfeld, W., B. Heinemann, G. Radach and P. Damm: Die ECOMOD - Datenbank, ein Hilfsmittel mariner Ökosystem-Forschung. Datenbericht 1988.

4-89 Meincke, J., and D. Quadfasel: "VALDIVIA"-Reise 78 - Grönlandsee. Fahrtbericht.

5-89 Ambar, I., J. Backhaus, A. Fiuza, P. Mahnke and D. Quadfasel: Hydrographic observations in the Tejo-estuary during September 1985.

6-89 Damm, P.: Klimatologischer Atlas des Salzgehaltes, der Temperatur und der Dichte in der Nordsee, 1968 - 1985.

7-89 Schauer, U.: VALDIVIA - Reise 86. Arktisfront. 9.8.89 - 5.9.89 Bodø-Hamburg. Fahrtbericht.

8-89 Quadfasel, D.: "Valdivia" Reise 87, Faroe-Shetland Kanal, 14.-24. September 1989, Fahrtbericht.

9-89 Latarius, K. and G. Gerdts: VALDIVIA cruise 72, 1.-22. July 1988. CTD observations in the North Sea and Irish Sea.

1-90 Frische, A. and D. Quadfasel: SULU SEA RV SONNE Cruise 58. Hydrographic observations in the South China Sea and Sulu Sea.

2-90 Moll, A. and G. Radach: Wärme- und Strahlungsflüsse an der Grenzfläche Wasser-Luft berechnet bei Feuerschiff FS ELBE 1 in der Deutschen Bucht: 1962-1986.

3-90 Bohle-Carbonell, M., P. Damm and A. Frische: VALDIVIA Reise 92. Deutsche Bucht - Skagerrak, 12. Februar - 2. März 1990.

4-90 Quadfasel, D. and B. Rudels: Some new observational evidence for salt induced convection in the Greenland Sea.

5-90 Quadfasel, D.: "Valdivia" Reise 104, Islandsee, 15.-31. Oktober 1990, Fahrtbericht.

6-90 Moll, A. and G. Radach: ZISCH Parameter Report. Compilation of measurements from two interdisciplinary STAR-shaped surveys in the North Sea (Vol. I: Graphic Reports).

7-90 Moll, A. and G. Radach: ZISCH Parameter Report. Compilation of measurements from two interdisciplinary STAR-shaped surveys in the North Sea (Vol. II: Data Lists).

8-90 Hähnel, M.: VALDIVIA Reise 100, Arktisfront, 17. Juli bis 18. August 1990, Fahrtbericht.

1-91 Hähnel, M. and F. Schirmer: ADCP-Workshop 1991 in Hamburg, Vortragszusammenfassungen.

1-92 Latarius, K.: Current measurements in the Greenland Sea and West Spitsbergen Current obtained with satellite-tracked drifters during spring 1987 to summer 1989.

2-92 Dippner, J.: Mesoscale variability of the German Bight - an atlas of circilation, sea surface density and sea surface heights.

1-93 Quadfasel, D.: Valdivia Reise 131, Hamburg-Aberdeen-Stornoway-Bodø, 11. Januar-25. Februar 1993, Fahrtbericht.

1-94 Quadfasel, D.: Valdivia Reise 141, Hamburg-Tromsoe-Tromsoe-Hamburg, 7. Februar - 1. April 1994, Fahrtbericht.

2-94 Rudels, B., H. Friedrich and K. Schulze: Valdivia Reise 136, 15. Mai - 17. Juni 1993, Grönlandsee, Fahrtbericht.

1-95 Vajen, T., K. Herklotz, H. Haak and J. Bock: Ozeanographisches Seminar Wintersemester 1994/95. Hydrographie und Zirkulation der südostasiatischen Gewässer. Literaturstudie über den Indo-Pazifischen Einstrom.

1-96 Quadfasel, D.: Cruise Report, VALDIVIA cruise V160, TASC'n TEACH, 5.-16. July 1996, Hamburg - Torshavn - Reykjavik.

1-97 Quadfasel, D.: Cruise Report, VALDIVIA cruise V164, TASC'n TEACH II, 12.-21. May 1997, Hamburg - Torshavn.

2-97 Quadfasel, D.: Cruise Report, VALDIVIA cruise V165, ESOP II - ACSYS, 21. May - 9. June 1997, Torshavn - Longyearbyen.

3-97 Moll, A.: ECOHAM1 User Guide - The Ecological North Sea Model, Hamburg, Version 1.

4-97 Backhaus, J.: Fahrtbericht VALDIVIA Reise V167. ACSYS, ARKTIEF, SFB 313, ESOP II. Longyearbyen – Hamburg, 2. Juli – 27. Juli 1997.

5-97 Quadfasel, D., J. Meincke, J. Backhaus, Th. Knutz, M. Koch und B. Dümcke: Arbeits- und Erfahrungs-bericht über den Einsatz von drei verankerten Autonomen Profilierenden Geräteträgern im Projekt ACSYS vor Spitzbergen im Sommer 1997.

1-98 Quadfasel, D.: Cruise Report, SONNE cruise SO127 BENGALWOCE, Port Klang – Malé, 17 December 1997 – 7 January 1998.

2-98 Quadfasel, D.: Cruise Report, VALDIVIA cruise V171, ACSYS, Teach and SFB 512, Hamburg - Torshavn – Reykjavik, 15. June – 2. July 1998.

3-98 Hainbucher, D. and Wei Hao: Cruise Report, Dong Fang Hong 2 AMBOS/AMREB cruise 1, Qingdao – Qingdao (P.R. China), 23.09..98 – 0.8.10..98

1-99 Karstensen, J.: The extended OMP analysis. An analysis package for MATLAB, Version 1, Hamburg.

2-99 Moll, A. und L. Ehlers: Zeitschriften-Verzeichnis, Institut für Meereskunde, März 1999.

3-99 Hainbucher, D. and Wei Hao: Cruise Report, Dong Fang Hong 2 AMBOS/AMREB cruise 2, Qingdao – Qingdao (P.R. China), 27.04..99 – 12.05.99

Hydrographic stations of POSEIDON cruise 264

Station No.	Profile	Date	Time	Latitude	Longitude	Waterdepth	max pressure	DAB	LADCP
327	1	26.08.00	02:29	61 03.166 N	06 56.340 W	211	202	8	
328	2	26.08.00	03:21	61 03.123 N	07 01.936 W	256	239	12	
329	3	26.08.00	04:06	61 03.094 N	07 08.047 W	398	381	11	
330	4	26.08.00	04:55	61 03.021 N	07 13.958 W	623	601	9	
331	5	26.08.00	05:54	61 02.922 N	07 20.108 W	801	778	10	
332	6	26.08.00	07:01	61 02.850 N	07 25.638 W	861	829	20	
333	7	26.08.00	08:15	61 02.703 N	07 31.887 W	890	851	21	
334	8	26.08.00	09:23	61 02.974 N	07 38.053 W	927	884	23	
335	9	26.08.00	10:30	61 03.028 N	07 43.928 W	945	888	48	
336	10	26.08.00	11:50	61 02.947 N	07 49.914 W	623	579	30	
337	11	26.08.00	14:28	61 15.071 N	08 17.935 W	292	274	29	
338	12	26.08.00	15:12	61 17.423 N	08 14.113 W	470	464	9	
339	13	26.08.00	16:05	61 19.513 N	08 10.164 W	801	797	12	
340	14	26.08.00	17:02	61 21.701 N	08 06.024 W	834	793	11	
341	15	26.08.00	18:04	61 23.839 N	08 01.942 W	716	700	10	
342	16	26.08.00	19:07	61 25.916 N	07 57.936 W	490	467		
343	17	26.08.00	20:01	61 28.053 N	07 53.910 W	182	171	8	
344	18	27.08.00	00:58	61 59.910 N	08 54.968 W	436	430	26	
345	19	27.08.00	01:56	61 56.954 N	08 55.162 W	461	429	27	
346	20	27.08.00	03:28	61 54.330 N	08 54.965 W	505	497	8	x
347	21	27.08.00	04:30	61 50.966 N	08 54.833 W	558	543	10	x
348	22	27.08.00	05:25	61 47.935 N	08 54.902 W	648	630	13	x
349	23	27.08.00	06:25	61 45.002 N	08 54.997 W	751	729	14	x
349	24	27.08.00	07:34	61 41.948 N	08 55.077 W	868	832	9	x
351	25	27.08.00	08:42	61 39.000 N	08 55.194 W	859	831	10	x
351	26	27.08.00	09:53	61 36.006 N	08 54.973 W	815	811	9	x
353	27	27.08.00	11:02	61 32.894 N	08 54.939 W	660	636	18	x
354	28	27.08.00	12:05	61 29.959 N	08 55.134 W	494	467	17	x
355	29	27.08.00	12:56	61 27.012 N	08 55.029 W	413	394	12	x
356	30	27.08.00	13:54	61 23.990 N	08 55.126 W	355	338	9	x
357	31	27.08.00	14:42	61 20.952 N	08 54.865 W	322	305	8	x
358	32	27.08.00	22:53	60 42.051 N	11 09.888 W	599	582	19	x
359	33	28.08.00	23:47	60 42.012 N	11 14.876 W	962	952	27	x

360	34	28.08.00	00:52	60 41.979 N	11 19.888 W	1263	1240	19	x
361	35	28.08.00	02:05	60 41.935 N	11 24.895 W	1296	1274	19	x
362	36	28.08.00	03:33	60 41.883 N	11 30.176 W	1286	1284	9	x
363	37	28.08.00	04:46	60 41.989 N	11 39.185 W	1237	1228	12	x
364	38	28.08.00	05:56	60 41.917 N	11 39.951 W	1048	1058	8	x
365	39	28.08.00	06:59	60 42.024 N	11 44.982 W	760	753	19	x
366	40	28.08.00	08:00	60 41.892 N	11 49.894 W	616	599	20	x
367	41	28.08.00	10:50	60 41.928 N	12 35.044 W	592	571	30	x
368	42	28.08.00	11:40	60 43.970 N	12 38.041 W	702	686	12	x
369	43	28.08.00	12:37	60 46.078 N	12 40.956 W	858	845	13	x
370	44	28.08.00	13:36	60 47.974 N	12 43.973 W	1054	1037	13	x
371	45	28.08.00	14:40	60 49.949 N	12 47.019 W	1192	1186	6	x
372	46	28.08.00	15:48	60 52.002 N	12 50.012 W	1373	1372	10	x
373	47	28.08.00	17:05	60 54.017 N	12 52.928 W	1493	1483	10	x
374	48	28.08.00	18:25	60 55.975 N	12 55.986 W	1628	1621	10	x
375	49	28.08.00	19:49	60 58.053 N	12 58.976 W	1680	1661		x
376	50	28.08.00	21:27	61 01.966 N	13 04.013 W	1676	1656		x
377	51	28.08.00	23:04	61 05.970 N	13 08.987 W	1649	1639	30	x
378	52	29.08.00	00:41	61 09.997 N	13 13.993 W	1604	1586	20	x
379	53	29.08.00	02:21	61 13.949 N	13 18.997 W	1556	1543	10	x
380	54	29.08.00	03:59	61 18.008 N	13 23.995 W	1585	1572	24	x
381	55	29.08.00	05:34	61 22.014 N	13 29.008 W	1630	1631	12	x
382	56	29.08.00	07:38	61 25.985 N	13 25.120 W	1655	1643	26	x
383	57	29.08.00	08:47	61 29.929 N	13 21.086 W	1620	1609	20	x
384	58	29.08.00	10:24	61 33.977 N	13 16.957 W	1550	1530	18	x
385	59	29.08.00	11:57	61 38.053 N	13 13.046 W	1451	1441	8	x
386	60	29.08.00	13:19	61 39.843 N	13 10.981 W	1384	1367	18	x
387	61	29.08.00	14:37	61 41.926 N	13 09.054 W	1430	1420	9	x
388	62	29.08.00	15:55	61 43.941 N	13 06.950 W	1307	1309	9	x
389	63	29.08.00	17:10	61 46.059 N	13 04.418 W	1275	1271	12	x
390	64	29.08.00	18:20	61 48.053 N	13 03.025 W	1257	1254	8	x
391	65	29.08.00	19:34	61 50.058 N	13 01.157 W	1208	1191	9	x
392	66	29.08.00	20:42	61 52.014 N	12 59.061 W	1222	1206	9	x
393	67	29.08.00	21:51	61 54.065 N	12 57.144 W	1238	1228	9	x
394	68	29.08.00	23:06	61 55.802 N	12 54.707 W	1241	1226	11	x
395	69	30.08.00	00:37	61 57.961 N	12 53.104 W	1236	1223	10	x

396	70	30.08.00	01:51	61 59.890 N	12 50.948 W	1267	1246	12	x
397	71	30.08.00	03:06	62 01.916 N	12 48.837 W	1204	1203	14	x
398	72	30.08.00	04:18	62 04.022 N	12 46.930 W	1136	1132	10	x
399	73	30.08.00	05:25	62 05.967 N	12 45.048 W	1089	1085	10	x
400	74	30.08.00	06:41	62 10.004 N	12 40.986 W	1030	1014	20	x
401	75	30.08.00	08:01	62 13.971 N	12 37.061 W	978	970	8	x
402	76	30.08.00	09:19	62 18.043 N	12 33.070 W	976	962	18	x
403	77	30.08.00	10:32	62 22.003 N	12 28.867 W	988	976	8	x
404	78	30.08.00	12:37	62 28.045 N	12 11.134 W	942	923	11	x
405	79	30.08.00	14:08	62 34.036 N	12 00.187 W	831	815	8	x
406	80	31.08.00	00:42	61 53.994 N	08 55.086 W	510	492	10	x
407	81	31.08.00	01:35	61 51.120 N	08 54.984 W	556	530	11	x
408	82	31.08.00	02:31	61 48.033 N	08 54.860 W	644	602	20	x
409	83	31.08.00	03:24	61 45.111 N	08 54.971 W	743	731	11	x
410	84	31.08.00	04:26	61 43.140 N	08 54.616 W	833	824	9	x
411	85	31.08.00	05:23	61 41.149 N	08 54.541 W	883	871	10	x
412	86	31.08.00	06:27	61 39.146 N	08 54.661 W	889	842	8	x
413	87	31.08.00	07:33	61 36.073 N	08 54.691 W	827	804	8	x
414	88	31.08.00	08:38	61 33.101 N	08 54.546 W	660	647	7	x
415	89	31.08.00	09:48	61 29.908 N	08 55.612 W	496	489	9	x
416	90	31.08.00	13:24	61 54.192 N	08 53.539 W	497	486	14	x
417	91	31.08.00	14:20	61 50.929 N	08 54.997 W	556	556	11	x
418	92	31.08.00	16:20	61 48.045 N	08 55.050 W	646	642	8	
419	93	31.08.00	17:19	61 45.041 N	08 55.077 W	746	744	8	
420	94	31.08.00	18:16	61 42.065 N	08 54.994 W	834	818	8	
421	95	31.08.00	19:15	61 41.009 N	08 54.980 W	880	879	15	
422	96	31.08.00	20:13	61 39.021 N	08 55.009 W	864	850	13	
423	97	31.08.00	21:17	61 36.060 N	08 54.819 W	822	822	13	
424	98	31.08.00	22:23	61 32.979 N	08 54.953 W	664	642	15	
425	99	01.09.00	01:36	61 53.860 N	08 55.336 W	537	504	13	
426	100	01.09.00	02:23	61 51.014 N	08 54.971 W	559	552	13	
427	101	01.09.00	03:14	61 47.988 N	08 55.248 W	648	650	4	
428	102	01.09.00	04:06	61:45.013 N	08 55.054 W	750	740	8	
429	103	01.09.00	04:58	61:43.061 N	08 54.937 W	854	809	6	
430	104	01.09.00	06:15	61 41:019 N	08 54.933 W	881	868	7	
431	105	01.09.00	07:05	61 38.934 N	08.54.705 W	860	843	8	

432	106	01.09.00	08:17	61 36.025 N	08 54.762 W		816	21	
433	107	01.09.00	09:27	61 33.061 N	08 55.091 W	666	654	9	
434	108	01.09.00	12:05	61 48.095 N	08 54.879 W	642	589	15	
435	109	01.09.00	13:08	61 45.082 W	08 54.942 W	750	655	22	
436	110	01.09.00	14:20	61 43.018 N	08 54.897 W	835	820	9	
437	111	01.09.00	15:15	61 41.000 N	08 55.000 W	878	874	9	
438	112	01.09.00	16:15	61 38.988 N	08 54.803 W	858	854	12	
439	113	04.09.00	17:42	63 00.000 N	13 40.000 W	1164	1162	9	
440	114	04.09.00	18:53	62 56.000 N	13 50.000 W	1248	1248	8	
441	115	04.09.00	20:25	62 53.895 N	14 00.085 W	1406	1408	8	
442	116	04.09.00	22:20	62 51.060 N	14 09.841 W	1500	1496	7	
443	117	05.09.00	00:28	62 48.014 N	14 19.840 W	1595	1587	10	
444	118	05.09.00	02:26	62 45.072 N	14 29.722 W	1678	1670	10	
445	119	05.09.00	04:26	62 42.025 N	14 39.940 W	1779	1772	6	
446	120	05.09.00	06:23	62 39.051 N	14 50.081 W	1879	1874	8	
447	121	05.09.00	08:18	62 36.096 N	15 00.109 W	1956	1957	8	
448	122	05.09.00	10:14	62 32.988 N	15 09.890 W	2023	2020	10	
449	123	05.09.00	12:17	62 30.137 N	15 19.886 W	2098	2094	7	
450	124	05.09.00	16:11	62 9.977 N	15 19.952 W	2170	2169	9	
451	125	05.09.00	18:25	62 13.031 N	15 08.060 W	2085	2081	12	
452	126	05.09.00	20:56	62 16.017 N	14 55.880 W	1994	1987	7	
453	127	05.09.00	23:06	62 18.948 N	14 43.854 W	1865	1868	10	
454	128	06.09.00	01:10	62 21.963 N	14 32.178 W	1708	1712	10	
455	129	06.09.00	03:27	62 25.044 N	14 20.039 W	1632	1634	9	
456	130	06.09.00	05:45	62 28.032 N	14 08.106 W	1504	1504	7	
457	131	06.09.00	07:52	62 30.990 N	13 56.099 W	1430	1426	12	
458	132	06.09.00	09:53	62 33.912 N	13 44.003 W	1248	1248	9	
459	133	06.09.00	11:38	62 36.973 N	13 32.219 W	1116	1110	11	
460	134	06.09.00	13:15	62 40.001 N	13 20.077 W	1014	986	10	

POSEIDON cruise 264 / Location of hydrographic stations

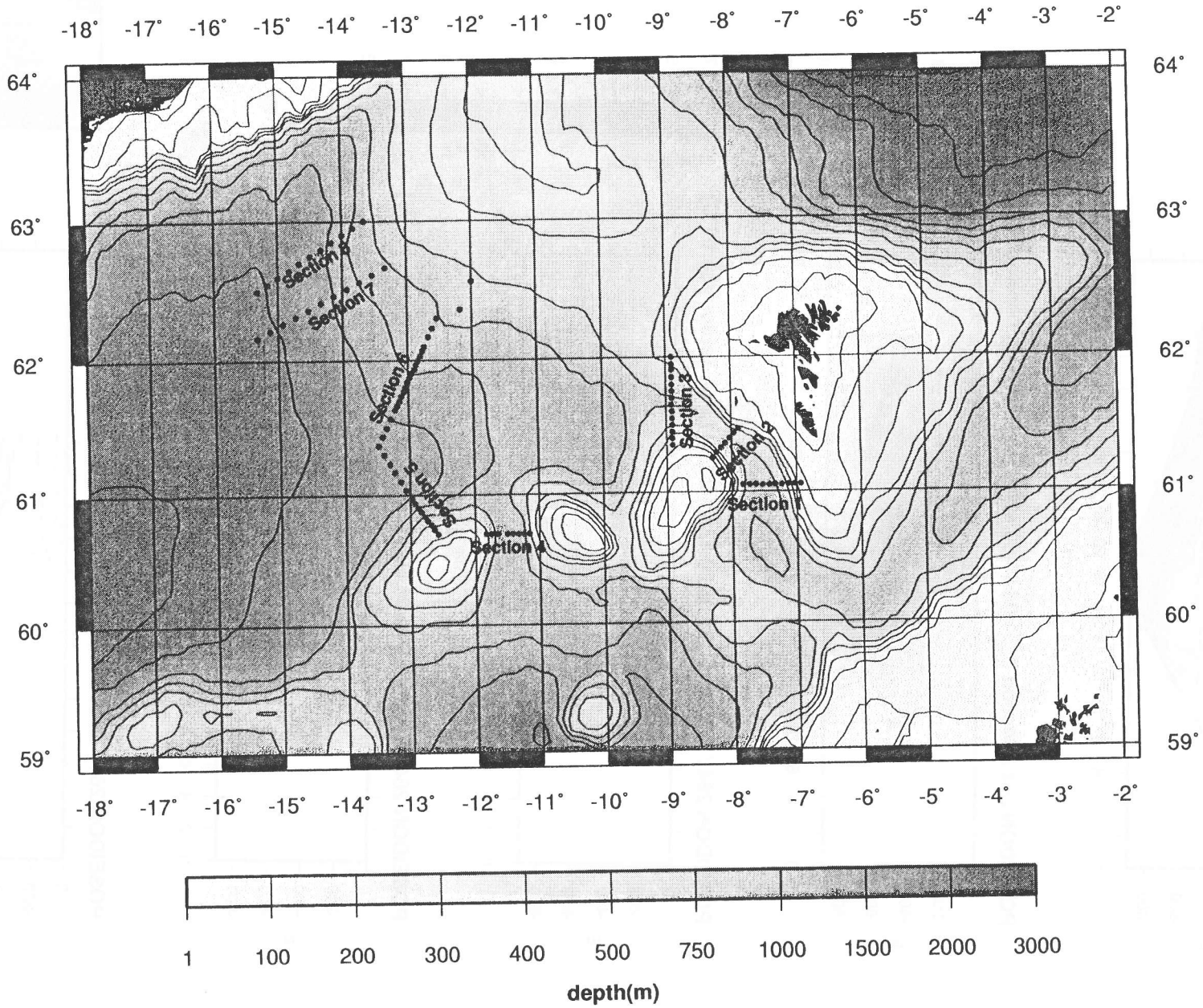

Figure 1

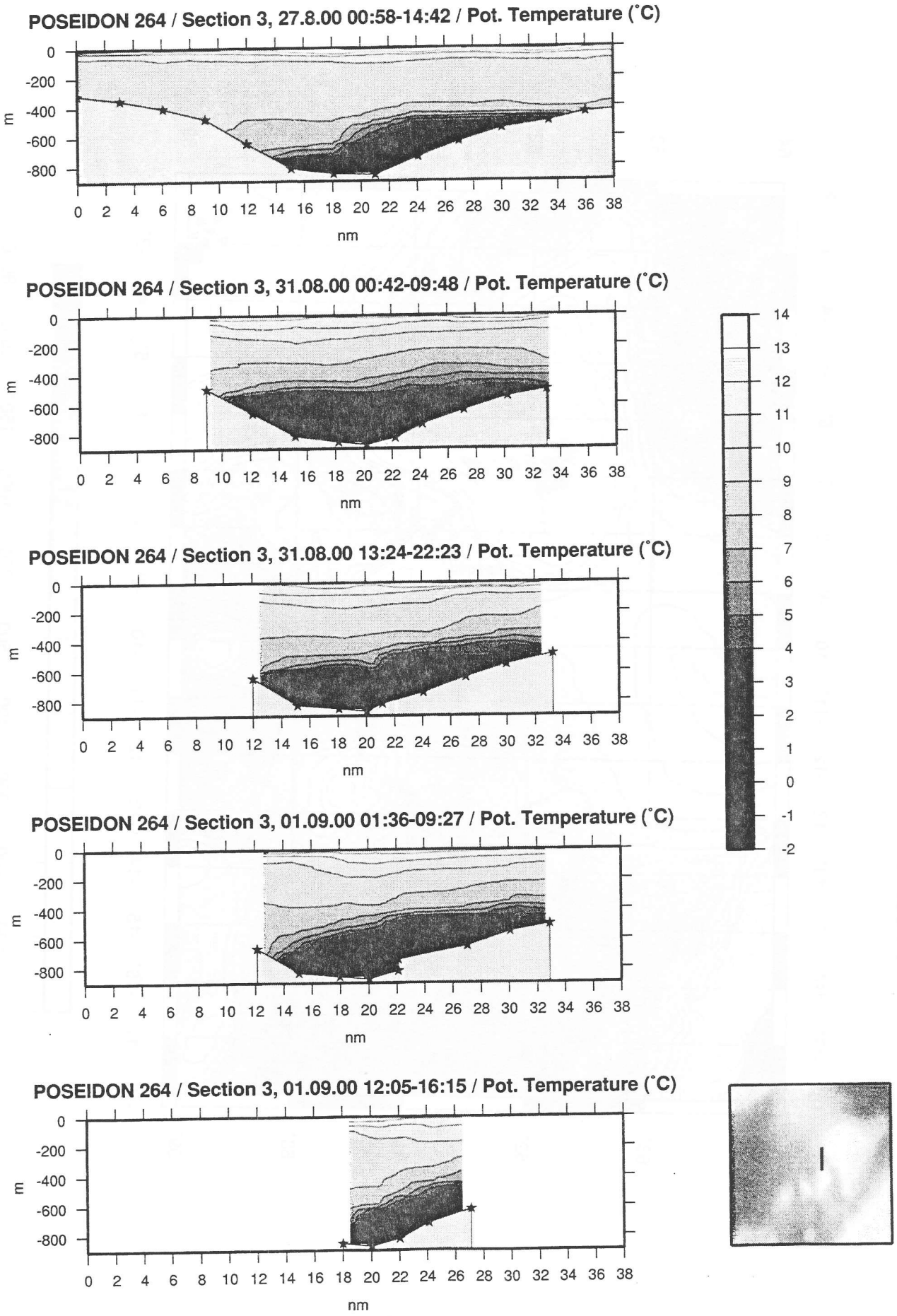
POSEIDON 264 / Section 3, 27.8.00 00:58-14:42 / Pot. Temperature (˚C)
POSEIDON 264 / Section 3, 31.08.00 00:42-09:48 / Pot. Temperature (˚C)
POSEIDON 264 / Section 3, 31.08.00 13:24-22:23 / Pot. Temperature (˚C)
POSEIDON 264 / Section 3, 01.09.00 01:36-09:27 / Pot. Temperature (˚C)
POSEIDON 264 / Section 3, 01.09.00 12:05-16:15 / Pot. Temperature (˚C)
m
0
-200
-400
-600
-800
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38
nm
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
-1
-2

Figure 2

TS-Diagram / Poseidon cruise 264

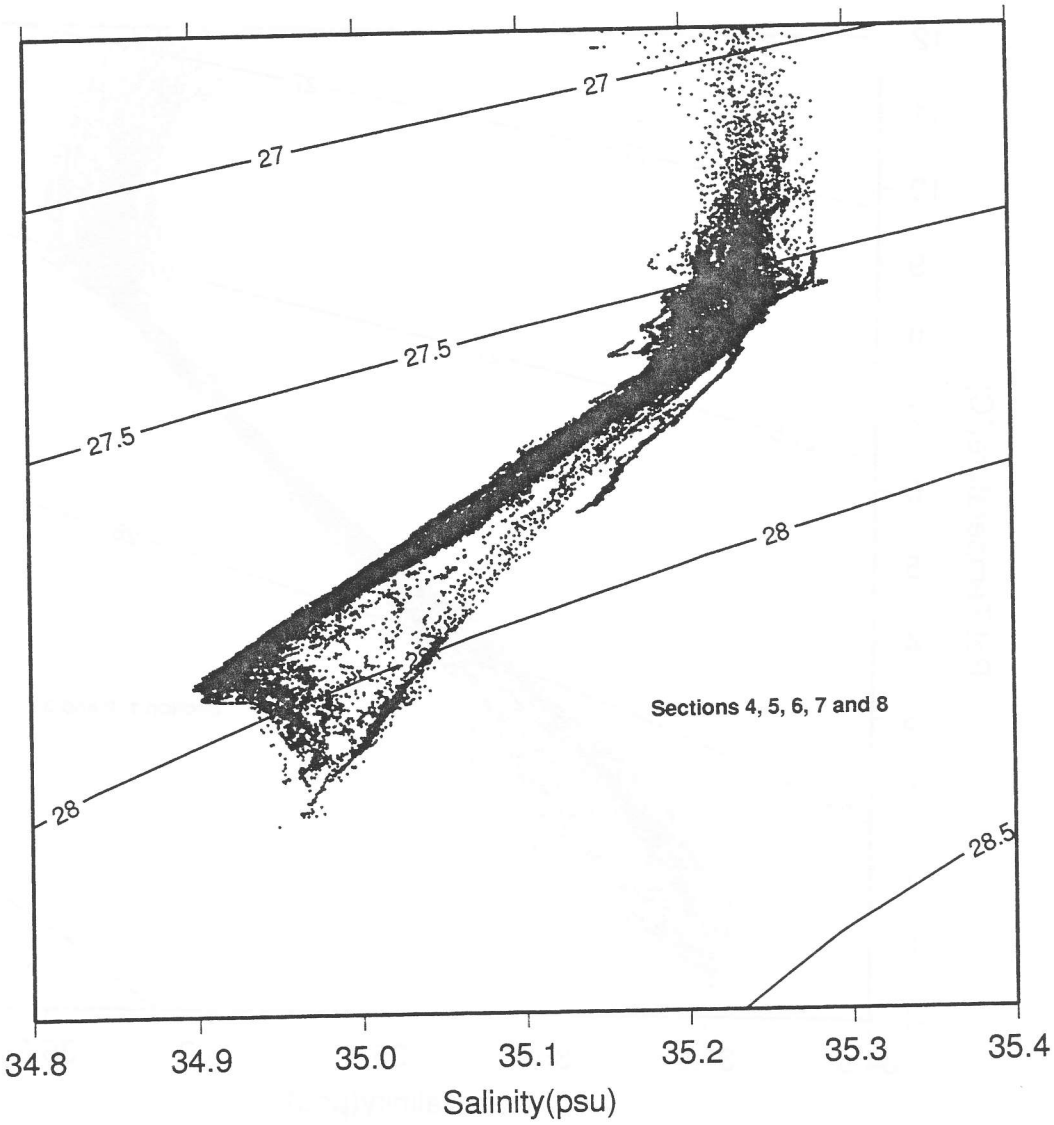

Figure 3

TS-Diagram / Poseidon cruise 264

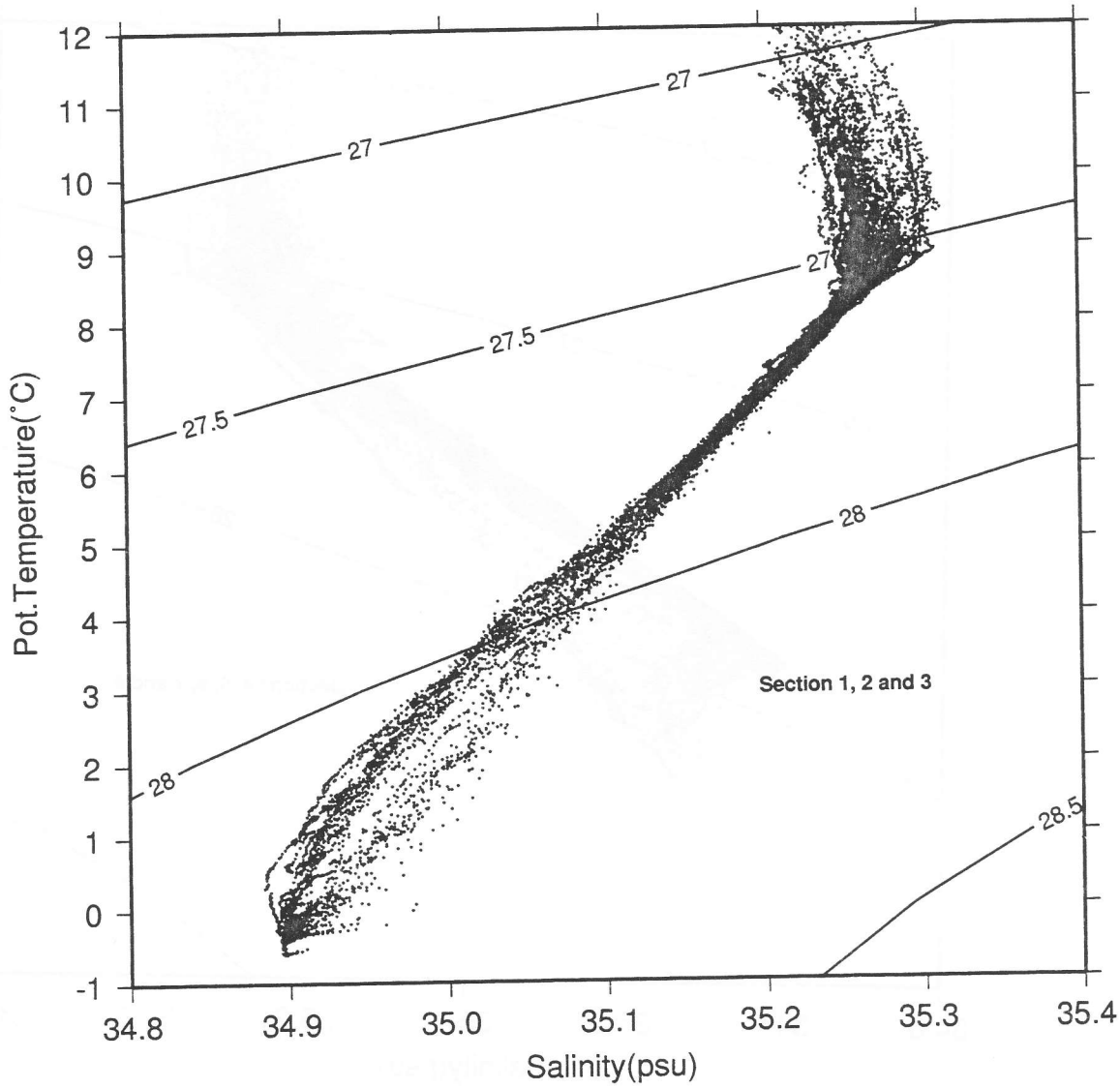

Figure 4

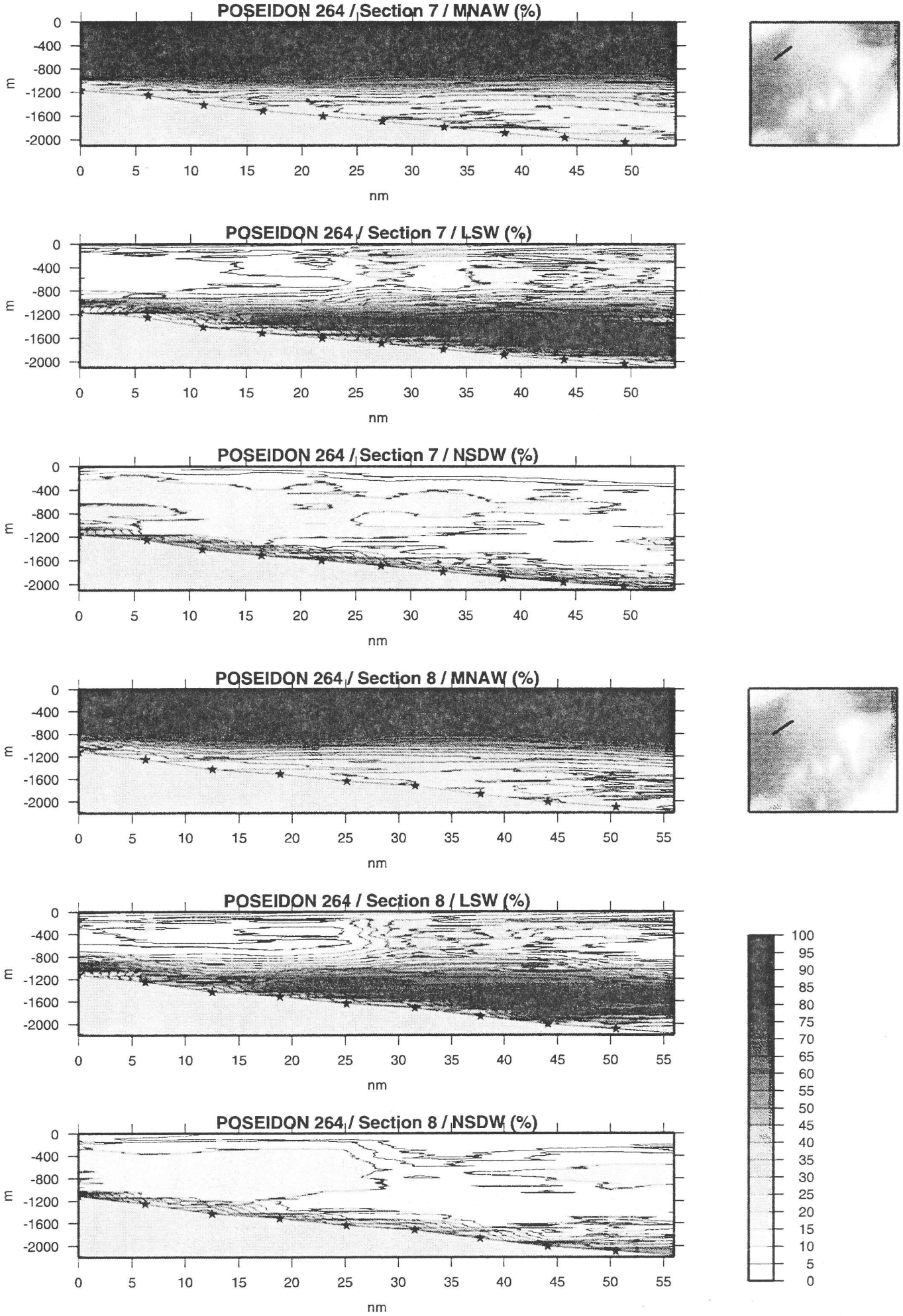
POSEIDON 264 / Section 7 / MNAW (%)
POSEIDON 264 / Section 7 / LSW (%)
POSEIDON 264 / Section 7 / NSDW (%)
POSEIDON 264 / Section 8 / MNAW (%)
POSEIDON 264 / Section 8 / LSW (%)
POSEIDON 264 / Section 8 / NSDW (%)
m
nm
0
-400
-800
-1200
-1600
-2000
0 5 10 15 20 25 30 35 40 45 50 55
100 95 90 85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0

Figure 5